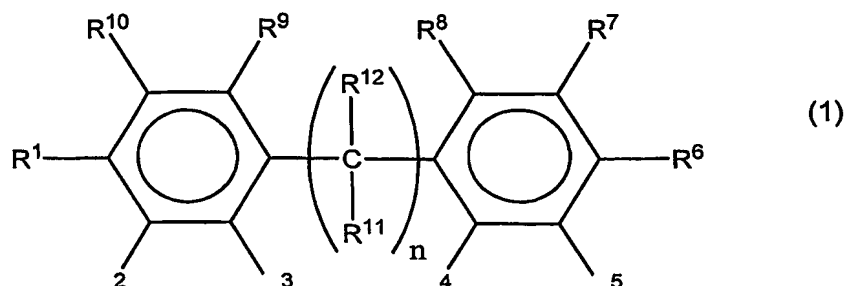


CLAIMS

1. Photoresist composition suitable for use at 10-165 nm comprising:
  - (a) a polymeric binder
  - 5 (b) a photoactive compound
  - (c) a dissolution inhibitor, the dissolution inhibitor comprising at least
    - (i) two aromatic groups,
    - (ii) fluorine and
    - (iii) a blocked acid group which when unblocked has a pKa < 12.
- 10 2. Photoresist composition according to claim 1 wherein the photoresist composition generally will contain:
  - (a) about 50 to about 99.5 wt% polymeric binder
  - (b) about 0 to about 10 wt% photoactive compound
  - 15 (c) about 0.5 to about 50 wt% dissolution inhibitor relative to the total (a) + (b) + (c).
3. Photoresist composition according to any one of claims 1-2 wherein the composition has an absorption coefficient of less than about  $3 \mu\text{m}^{-1}$
4. Photoresist composition according to any one of claims 1-3 wherein the dissolution inhibitor, when used at 10 wt% in a polymeric binder adds about  
20  $0.8 \mu\text{m}^{-1}$  or less to the absorbance coefficient of the composition.
5. Photoresist composition according to any one of claims 1-4 wherein the dissolution inhibitor has 2-5 aromatic atoms.
6. Photoresist according to any one of claims 1-5 wherein the dissolution inhibitor has 2 or more fluorine atoms.
- 25 7. Photoresist according to any one of claims 1-6 wherein the acid group is an hydroxyl group bound to an aromatic group, or a  $\text{C}(\text{CF}_3)_2 \text{OH}$  bound to an aromatic ring.
8. Photoresist according to any one of claims 1-7 wherein the acid group is at least partly blocked with a carbonate, acetal group, ortho ester, or tertiary alkyl  
30 group.
9. Photoresist according to any one of claims 1-8 wherein the dissolution inhibitor comprises a bisphenol structure.
10. Compounds represented by formula 1.



in which  $n = 1-4$

5 at least one of  $R^1-R^{10}$  independently comprise a (blocked) acid group, the group when unblocked has a  $pK_a < 12$ .

the other  $R^1-R^{10}$  represent independently hydrogen, fluorine or hydrocarbonaceous substituents.

$R^{11}$  is an aliphatic fluorinated group.

10  $R^{12}$  represents hydrogen or an aliphatic group having 1-10 carbon atoms and 0-13 fluorine atoms, and  $R^{11}$  and  $R^{12}$  are not both  $CF_3$ .

11. Compound according to claim 10 wherein  $R^{11}$  preferably is a  $C_2-C_{10}$  group, having 2-20 fluorine atoms.

15 12. Compound according to any one of claims 10-11 wherein one of  $\{R^1-R^3, R^9, R^{10}\}$  and one of  $R^4-R^8$ , independently, are preferably hydroxy or  $C(CF_3)_2OH$ , any of these optionally protected with an acid labile protecting group.

13. Compound according to any one of claims 10-12 wherein the other  $R^1-R^{10}$  independently, are hydrogen.

20 14. Compound according to any one of claims 10-13 wherein  $R^{12}$  preferably is hydrogen.

15. Process for forming an etched layer in a chip comprising, in order:

(A) forming a photoresist layer on a substrate

wherein the photoresist layer is prepared from a photoresist composition comprising:

(a) a binder;

(b) a photoactive component; and

(c) the at least one dissolution inhibitor, the dissolution inhibitor

comprising at least (i) two aromatic groups (ii) fluorine, and (iii) a

(blocked) acid group which when unblocked has a  $pK_a < 12$

- (B) imagewise exposing a photoresist layer to form imaged and non-imaged areas,
- (C) developing the exposed photoresist layer having imaged and non-imaged areas to form the relief image on the substrate
- (D) etching the substrate to a predetermined depth
- (E) removing the relief image from the substrate.

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16. A process for the production of a chip by using immersion lithography, comprising the step of forming a photoresist layer on a substrate, wherein the photoresist layer is prepared from a photoresist composition comprising:

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- (a) a binder;
- (b) a photoactive component.
- (c) a fluor containing compound.

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